

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
23 June 2005 (23.06.2005)

PCT

(10) International Publication Number
WO 2005/056503 A1

- (51) International Patent Classification⁷: C07C 2/08, 5/02, B01J 21/00, 23/755
- (21) International Application Number: PCT/CA2004/002111
- (22) International Filing Date: 10 December 2004 (10.12.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 60/528,699 12 December 2003 (12.12.2003) US
- (71) Applicant (for all designated States except US): **UNIVERSITY OF WATERLOO** [CA/CA]; 200 University Avenue West, Needles Hall, Room 3005, Waterloo, Ontario N2L 3G1 (CA).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **NG, Flora Tak Tak** [CA/CA]; 532 Sandbrooke Court, Waterloo, Ontario N2T 2H4 (CA). **REMPEL, Garry, Llewellyn** [CA/CA]; 532 Sandbrooke Court, Waterloo, Ontario N2T 2H4 (CA). **NKOSI, Bongani** [ZA/ZA]; 17, Jacob Street, 1911 Vanderbijlpark (ZA).
- (54) Title: COMPOSITE CATALYST FOR THE SELECTIVE OLIGOMERIZATION OF LOWER ALKENES AND THE PRODUCTION OF HIGH OCTANE PRODUCTS
- (57) Abstract: The present invention relates to a) a catalytic composite comprising a support structure and a catalytic species that is deposited on the support structure, b) a process for the selective oligomerization of lower alkenes and mixtures of alkenes, which process comprises contacting the lower alkenes with the catalytic composite in a catalytic distillation apparatus and under catalytic distillation conditions, and c) a process for producing high octane products, which process comprises hydrogenating one or more catalytic distillation apparatus and under catalytic distillation conditions.
- (74) Agents: SMART & BIGGAR et al.; P.O. Box 2999, Station D, 900 - 55 Metcalfe Street, Ottawa, Ontario K1P 5Y6 (CA).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:
— with international search report
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.



WO 2005/056503 A1